REMARKS

The Examiner's detailed examination and clearly written Office Action are very much appreciated. Claims 1-10 were examined in the Office Action mailed August 5, 2005. Claims 3 and 4 were rejected under 35 U.S.C. § 112, 2nd paragraph as unclear. Claims 1, 3 and 5-7 were rejected as anticipated by *Maenz* (GB 2,340,727). Claims 1-7 and 9-10 were rejected as obvious over *Maenz* in view of *Mantha* (EP 57146). Claims 1 and 3-8 were rejected as obvious over *Maenz* in view of *Tobey* (U.S. Patent No. 5,662,901). Claims 1, 3 and 5-7 were rejected as obvious over *Maenz* in view of *Nielsen* (U.S. Patent No. 5,989,600). Claims 1-10 were rejected as obvious over *Maenz* in view of *Cobb* (U.S. Patent No. 6,623,750).

Claims 1, 3 and 5 are amended above. Claims 11-20 are newly presented, with no new subject matter added. In view of the above amendments, reconsideration of the rejections is respectfully requested.

A. Claims 3 and 4 Clarified to Address 35 U.S.C. § 112 Rejection

Claim 3 has been amended to include the term "exogenous" before each listed enzyme. Although the previous form in which the leading "exogenous" term was applicable to each of the listed enzymes, the amendment clarifies this point. Withdrawal of the § 112 rejection of claims 3 and 4 is respectfully requested.

B. Amended Claims 1, 3 and 5-7 are Patentably Distinguishable Over *Maenz*.

Maenz teaches a process for converting phytate in a food into inorganic phosphate comprising the steps of

(1) mechanically mixing a slurry containing
  (a) a phytate containing food,
  (b) a solvent mixture comprising
    (i) water
    (ii) a water-immiscible organic solvent
  (c) a phytase
(2) drying the food.

See, Maenz, page 4, line 24 – page 5, line 7. The technique requires the creation and mixing of a slurry of the phytate-containing food—which, it can be easily imagined—is a substantial undertaking when applied to the huge volume of feed ingested by ruminants. It also requires a solvent containing a water-immiscible organic solvent, after which the slurry is dried to remove the solvent from the food.

The composition of claim 1 has been amended to more clearly distinguish a preferred embodiment of applicant's invention which involves a miscible product, which does not require formation and drying of a slurry to use.

> a miscible product containing:
> an exogenous phytase enzyme;
> an exogenous cellulase enzyme; and
> water.

For this reason alone, amended claim 1 is patentably distinguishable over *Maenz*, as is claim 3 which depends from amended claim 1.

The method of claim 5 has also been amended to more clearly distinguish a preferred embodiment of applicant's invention over *Maenz*. As amended claim 5 recites the steps of:

> treating the feed with a dry exogenous phytase enzyme and with a dry exogenous enzyme formulation; and
> feeding the treated feed to ruminants.

This method is completely contrary to the slurry technique of *Maenz*. For this reason alone, amended claim 5 is patentably distinguishable over *Maenz*, as are claims 6 and 7 which depend from amended claim 5.

Claims 1, 3, and 5-7 being patentably distinguishable over *Maenz*, withdrawal of the rejection of claims 1, 3 and 5-7 under 35 U.S.C. § 102(b) is thus proper and respectfully requested.

C. Obviousness Rejection of Claims 1-7 and 9-10 by *Maenz* in view of *Mantha* is Addressed

The distinguishing features of amended claims 1 and 5 over *Maenz* apply equally to the obviousness rejection of claims 1-7 and 9-10 based on *Maenz*. Amended claim 1 and dependent claims 2-4 require a miscible product. Claims 5-7, 9 and 10 require application of dry cellulase and phytase to ruminant feed.

Mantha is relied upon for teaching a mixture for feeding to milk-producing cows, containing cellulase, maple syrup and a carrier. *Mantha* fails to teach the inclusion of a phytase in its feed supplement, either in a dry form or in a miscible composition. Thus, *Mantha* does not supply the teachings missing from *Maenz*.

Accordingly, claims 1-7 and 9-10 are patentably distinguishable over *Maenz* with *Mantha*. Withdrawal of the rejection of claims 1-7 and 9-10 under 35 U.S.C. § 103(a) based on *Maenz* and *Mantha* is thus proper and respectfully requested.

D. Amended claims 1 and 5, and Dependent Claims 3, 4 and 6-8 are Distinguishable over *Maenz* in view of *Tobey*

The distinguishing features of amended claims 1 and 5 over *Maenz* apply equally to the obviousness rejection of claims 1 and 3-8 based on *Maenz* taken with *Tobey*. Amended claim 1 and dependent claims 3 and 4 require a miscible product containing both cellulase and phytase. Amended claim 5 and dependent claims 6-8 require the application of dry cellulase and phytase to ruminant feed.

Tobey is relied on for teaching an enzymatic grain conditioner to increase the availability of starch, protein and other nutrients. However, *Tobey* fails to teach the use of phytase enzymes in either the dry form or in a miscible composition. Moreover, *Tobey's* teaching of increased availability relates to organic materials, not inorganic phosphate. Thus, *Tobey* does not supply the teachings missing from *Maenz*.

Accordingly, claims 1 and 3-8 are patentably distinguishable over the *Maenz* in view of *Tobey*. Withdrawal of the rejection of claims 1 and 3-8 under 35 U.S.C. § 103(a) is thus proper and respectfully requested.

E. Amended claims 1 and 5, and Dependent Claims 3, 6 and 7 are Distinguishable over *Maenz* in view of *Nielsen*

The distinguishing features of amended claims 1 and 5 over *Maenz* apply also to the obviousness rejection of claims 1, 3 and 5-7 based on *Maenz* in view of *Nielsen*. Amended claim 1 and dependent claim 3 require a miscible product containing both cellulase and phytase. Amended claim 5 and dependent claims 6 and 7 require the application of dry cellulase and phytase to ruminant feed.

Nielsen teaches a phytase enzyme and a proteolytic enzyme, for the purpose of improving the solubility of vegetable proteins. *Neilsen* fails to teach a composition or a method of combining a phytase enzyme with a cellulase enzyme without the presence of a proteolytic enzyme for the purpose of increasing phosphate retention and decreasing phosphate waste . Moreover, *Nielsen*'s only references in its Detailed Disclosure are to monogastric animals:

> In particular the protein hydrolysate of the invention may be added to animal feed, e.g., feedstuffs for monogastric animals. Col. 5, lines 61-63.
>
> Example 3—Effect of Phytase on apparent Nitrogen disgestability and Nitrogen Utilization in Pigs. Col. 9, lines 12-48.

Nowhere is there any mention in *Nielsen* to ruminants, to which all of the claimed enzyme compositions of the present invention are recited as adapted for.

Accordingly, one skilled in the art would not be motivated to combine *Maenz* with *Nielsen*. Thus, claims 1, 3 and 5-7 are patentably distinguishable over the combination of *Maenz* and *Nielsen*. Withdrawal of the rejection of claims 1, 3 and 5-7 under 35 U.S.C. § 103(a) is thus proper and respectfully requested.

F. Obviousness Rejection of Claims 1-10 by *Maenz* in view of *Cobb* is Addressed

The distinguishing features of amended claims 1 and 5 over *Maenz* apply also to the obviousness rejection of claims 1-10 based on *Maenz* with *Cobb*.

Cobb is relied upon for teaching an enzymatic grain conditioner containing *T. viride* cellulase and other enzymes in a sequential order and to dairy cows or beef cattle. However, *Cobb* fails to teach the use of phytase enzymes in either the dry form or in a miscible composition. Thus, *Cobb* does not supply the teachings missing from *Maenz*.

Accordingly, claims 1-10 are patentably distinguishable over *Maenz* in view of *Cobb*. Withdrawal of the rejection of claims 1-10 under 35 U.S.C. § 103(a) is thus proper and respectfully requested.

G. Newly Added Claims 11-20 Are Patentably Distinguishable Over the References of Record

As amended, the distinguishing features of claims 1-10, apply also to newly added claims 11-20. New independent claim 11 follows:

> An enzyme composition adapted to be applied to ruminant feed in a dry state for increasing the phosphorus digestibility of the feed by ruminants, the enzyme composition consisting essentially of:
>
> a dry exogenous phytase enzyme adapted to be applied to the ruminant feed in a dry state; and
>
> a dry exogenous cellulase enzyme adapted to be applied to the ruminant feed in a dry state.

The composition of claim 11 consists essentially of dry exogenous phytase and dry exogenous cellulase adapted to be applied to a ruminant fee in a dry state. This composition is patentably distinguishable over the references of record for the reasons give above relative to amended claim 5.

Independent method claim 15 follows:

A method of increasing phosphorus digestibility of ruminant feed comprising the steps of:

treating the feed with a miscible composition containing:

an exogenous phytase enzyme,

an exogenous cellulase enzyme, and

water; and

feeding the treated feed to ruminants.

The method of claim 15 requires the application of a miscible composition containing an exogenous phytase and an exogenous cellulase to ruminant feed and the fee is then fed to ruminants. This method is patentably distinguishable over the references of record for the reasons give above relative to amended claim 1.

H. Conclusion and Petition for Three-Month Extension

Pending claims 1-20 being patentably distinguishable over the references of record, allowance of claims 1-20 is proper and respectfully requested. Should any outstanding issues remain, the Examiner is asked to telephone the undersigned.

Applicant hereby petitions for a Three-Month Extension of Time, extending the due date for response from November 5, 2005 to February 5, 2006. Enclosed is a check in the amount of $1,020.00 for the large entity, 3-month extension of time fee. Please charge any other fee associated with this transmittal to Deposit Account No. 50-1123.

Respectfully submitted,

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Carol W. Burton, Reg. 35,465
Hogan & Hartson L.L.P.
1200 17th Street, Suite 1500
Denver, Colorado 80202
Telephone: 303.454.2454
Facsimile: (303) 899-7333